

CLAIMS

1. A terminal whose opportunity to access a communication medium is controlled in accordance with a control frame issued
5 from a control station connected to a network, the terminal comprising:

a control frame detection portion of detecting the control frame issued from the control station;

a control frame memory portion of storing control information
10 contained in the control frame;

a substitute frame issuance determination portion of determining to issue a substitute frame when the control frame detection portion does not detect the control frame until a predetermined first time period is elapsed; and

15 a substitute frame issuance portion of creating a frame which is the same as or equivalent to the control frame, as the substitute frame, based on the control information stored in the control frame memory portion when the substitute frame issuance determination portion determines to issue the substitute frame, and issuing the
20 created substitute frame.

2. The terminal according to claim 1, wherein the control frame memory portion stores the control frame only when the control frame has a change.

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3. The terminal according to claim 1, wherein the substitute frame issuance portion transmits a refusal response frame indicating that a request which is transmitted from another terminal and should be responded to by the control station is refused, during issuance of the substitute frame periodically.

4. The terminal according to claim 1, wherein the substitute frame issuance portion does not respond to a request which is transmitted from another terminal and should be responded to by the control station, during issuance of the substitute frame periodically.

5. The terminal according to claim 1, wherein the substitute frame issuance portion stops issuing the substitute frame during issuance of the substitute frame periodically, if receiving a frame from the control station.

6. The terminal according to claim 1, wherein the substitute frame issuance portion determines whether or not a frame is received from the control station until a predetermined second time period is elapsed, and

the terminal further comprises:

a control station mode portion of causing the terminal to operate as a control station when the substitute frame issuance portion determines that a frame is not received from the control

station until the predetermined second time period is elapsed.

7. The terminal according to claim 6, wherein the control station mode portion collects information required as a control station from another terminal.

8. The terminal according to claim 6, wherein the control station mode portion issues a reset signal to collect information required as a control station from another terminal.

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9. The terminal according to claim 1, wherein, when the control frame is not detected until the first time period is elapsed, the terminal tries to access the communication medium in accordance with control information contained in a previously received control frame.

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10. The terminal according to claim 1, wherein the substitute frame issuance portion competes for a right to access the communication medium before issuing the substitute frame, and when acquiring the access right, issues the substitute frame.

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11. The terminal according to claim 10, wherein a candidate terminal which issues the substitute frame is designated by the control station,

25 the candidate terminal is given a priority, and

a terminal having a higher priority has a higher probability of acquiring the access right in the access right competition for issuance of the substitute frame.

5 12. The terminal according to claim 1, wherein a candidate terminal which issues the substitute frame is designated by the control station,

the terminal further comprises a candidate terminal designation recognition portion of recognizing whether or not the
10 control station designates the terminal as the candidate terminal, and

when the candidate terminal designation recognition portion recognizes that the terminal is designated as the candidate terminal, the substitute frame issuance determination portion
15 determines whether or not to issue the substitute frame, assuming that a time period which is shorter than a first time period in a terminal which is not designated as the candidate terminal, is the first time period.

20 13. The terminal according to claim 12, the candidate terminal is given a priority, and

the substitute frame issuance determination portion uses a first time period having a length corresponding to the priority to determine whether or not to issue the substitute frame.

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14. The terminal according to claim 11 or 12, wherein the candidate terminal is designated by the control station based on information about a communication state of a terminal in the network.

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15. The terminal according to claim 11 or 12, wherein in a situation that the terminal is designated as a candidate terminal, when the control station designates another terminal as a candidate terminal, the designation of the terminal as a candidate terminal is released.

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16. The terminal according to claim 1, wherein an identifier for the control station is described in the control frame.

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17. The terminal according to claim 16, wherein the terminal operates as the control station when an identifier for the terminal is described in the substitute frame.

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18. A method executed in a terminal whose opportunity to access a communication medium is controlled in accordance with a control frame issued from a control station connected to a network, a method comprising:

detecting the control frame issued from the control station;

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storing control information contained in the control frame;

determining to issue a substitute frame when the control frame is not detected until a predetermined first time period is elapsed;

creating a frame which is the same as or equivalent to the
5 control frame, as the substitute frame, based on the stored control information when it is determined to issue the substitute frame;
and

issuing the created substitute frame.